

BUILDING SCHOOL READINESS THROUGH HOME VISITATION

Appendix B. Meta-Analyses, Literature Reviews, and Recent Studies of Home Visiting Programs

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APPENDIX B.
META-ANALYSES, LITERATURE REVIEWS, AND RECENT
STUDIES OF HOME VISITING PROGRAMS

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I. INTRODUCTION AND DEFINITIONS

Home visiting research has blossomed in the past two decades, and new studies continue to be produced each year. This Appendix is an annotated bibliography of several of the most recent literature reviews and meta-analyses, and of some significant research studies that were published after those reviews were compiled. The studies, literature reviews, and meta-analyses listed in this Appendix are the primary sources of information that were used to form the conclusions reached in the main report.

Traditionally, researchers have undertaken *literature reviews* when they wanted to summarize the results of a field. The author of a literature review searches the published and unpublished literature for reports, reads the reports, and then uses his or her own judgment to divine the patterns that emerge. Standard rules of thumb, based on statistical probability, are used to determine if results in any one study are really due to the intervention, or are merely flukes of chance. If the author of the literature search is not careful, it is possible to miss patterns of benefits, if the benefits are too small in magnitude to reach statistical significance in individual studies.

A newer approach is the *meta-analysis*. The author of a meta-analysis also searches the literature for and reads studies, but then the author uses statistical techniques to combine the results of similar studies to generate an estimate of the magnitude of the benefits produced by programs of similar types. The benefit of such an approach is that if each of several studies produced only small benefits that did not rise to the level of statistical significance, a meta-analysis could combine those results and detect the presence of a pattern of small benefits. The challenge is that the meta-analysis should only combine studies that are similar enough that combining them makes sense. If home visiting programs have very different goals or operate in very different contexts (e.g., in other countries), for example, it might not make sense to combine them in a meta-analysis.

II. META-ANALYSES

Table 1 summarizes the key findings from several of the most recent meta-analyses of home visiting programs. Greater detail about each of the meta-analyses included in Table 1 appears below.

A. Meta-Analyses Derived from the Abt Associates Database

As part of a contract with the federal government to assess family support programs, Abt Associates undertook a meta-analysis of the family support literature since 1965. The Abt Associates database included all family support programs. Appelbaum and Sweet used the Abt database to conduct a meta-analysis that included only those family programs that employed home visiting. In contrast, the Abt researchers conducted some analyses that focused on family support broadly, some on home visiting programs, and some that contrasted the use of home visiting with other service strategies. The following summarizes the results of both efforts.

Table 1.
Summary of Meta-Analyses of Home Visiting Programs

	Abt Associates (Short-Term)	Abt Associates (Follow-Up)	Appelbaum & Sweet	Elkan et al	Roberts et al	Guterman	MacLeod & Nelson	Hodnett
READY FAMILIES AND COMMUNITIES								
Parenting Knowledge/Attitudes/ Behavior (HOME)	.18/.25/.30	-.18/-	.10	+		+		
Child Health and Safety								
Nutrition: Breastfeeding/Diet				+/?				
Preventive Health Services & Medical Home				-				
Child Health Status								
Birth Outcomes: Preterm Birth and LBW								-
Child Health Status and Physical Growth	.09	-		-				
Child Safety	.15	-						
Home Safety Hazards								
Unintentional Injuries				+				
Child Abuse and Neglect			.17-.48	?	?		.41	
Maternal Life Course								
Stress, Social Support, Mental Health	.09	.17	-	+/?				
Economic Self-Sufficiency	.10	.39	-	?				
Education			.11	?				
READY CHILDREN								
Children's Cognitive and Language Development, Academic Achievement	.09/.26/.36*	.30		+				
Social and Emotional Development, Child Behavior	.15	.09		+				
READY SCHOOLS								
Parental Involvement with Children's Education/School Events								

Notes: + indicates positive effect shown; - indicates no effect; ? indicates not enough adequate studies to draw a conclusion.

Numerical values are in standard deviation units. Variation across meta-analyses is driven by the studies included. Abt Associates: U.S. only; all family support (not just home visiting) programs, unless otherwise noted. Hodnett: broad-based social support. Elkan et al, Roberts et al, MacLeod & Nelson, and Hodnett: home visiting only, but include international studies. Elkan et al and Abt Associates (except where otherwise noted) include children with special needs.

* Only home visiting programs: .09=untargeted population; .26=both special needs and other children; .36=targeted to children with special needs only. See also Appendix A.

1. **Appelbaum, M. & Sweet, M.A. (1999) Is home visiting an effective strategy? Results of a meta-analysis of home visiting programs for families with young children. University of California, San Diego. Presented at a workshop of the Board on Children, Youth, and Families of the National Academy of Sciences, Washington, D.C. Available from Mark Appelbaum: mappelbaum@ucsd.edu**

Employs the database of studies from Abt Associates but examines only programs employing home visiting services as the primary means of service delivery. Reports the following effect sizes:

- *Child Development*
 - Cognitive child development: .12, $p < .01$
 - Socioemotional child development: .10, $p < .01$
- *Parenting*
 - Parenting behaviors: .10, $p < .01$
 - Parenting attitudes: .10, $p < .01$
- *Prevention of child abuse*
 - Actual abuse: .48, $p < .01$
 - Potential abuse: .17, $p < .01$
 - Parent stress: .10, not statistically significant
- *Maternal life course*
 - Education: .11, $p < .01$
 - Employment/wages: .00, not statistically significant
 - Reliance on public assistance: -.04, not statistically significant

The authors conclude:

- a. Effect sizes, while significant, are small for both child and parent outcomes. Their practical significance should be questioned.
- b. There is no evidence that the duration or intensity of the intervention influences effect sizes.
- c. There are no consistent effects across outcome groups for targeted populations.
- d. No consistent effects across outcome groups for primary program goals (e.g., programs that focus on child-related goals do not necessarily achieve child outcomes more than do programs that focus on parent-related goals).

2. **Layzer, J.I., Goodson, B.D., Bernstein, L, & Price, C. *National evaluation of family support programs. Final Report Volume A: The meta-analysis.* Abt Associates, April 2001.**

Meta-analysis of family support programs, including home visiting programs, conducted since 1965. The authors identified 900 research reports, coded 665 studies (representing 260 programs), and eventually included the most methodologically rigorous of those studies in the meta-analysis. That resulted in two databases: (1) an end-of-treatment database of 351 randomized or quasi-experimental studies of 191 programs, and (2) a follow-up database of 158 randomized or quasi-experimental

studies of 87 programs. Approximately half of these programs included home visiting services as the primary mode of service delivery, and another 12% used home visits to deliver some services. The analyses cover the short-term and long-term effects of the programs and the differential effectiveness of alternative service strategies.

Selected findings:

- Family support services generate small positive effects in children's cognitive development, social and emotional development, and parenting attitudes and knowledge, parenting behavior, and family functioning.
- Services generate statistically significant but very small and perhaps functionally meaningless benefits on children's physical health and development, safety, parents' mental health or risk behaviors, and family economic self-sufficiency.
- Programs that focus on children with special needs have larger effects on children's cognitive outcomes, as do programs that provide early childhood education directly to children.
- In contrast, programs that use home visiting as a primary intervention have weaker effects on children's cognitive outcomes.
- Programs that use professional staff to help parents to be effective adults, and that provide opportunities for parents to meet in support groups are more effective in producing positive outcomes for parents.
- Strategies showing the weakest effects were those relying on home visits, delivered by paraprofessional staff, with non-targeted services.
- Teens benefited from having a case manager, and organized parent-child activities.

The following tables from the Layzer et al paper list the magnitude of the effect sizes for cognitive development in programs with various characteristics. Generally, they show that center-based early childhood education programs and parent peer support groups have larger effects on child cognitive development than do home visiting programs, and that children with biological risks benefit more than other children.

Average Effects on Children's Cognitive Development for Different Program Characteristics: Randomized Studies

Program Characteristic	Present	Absent	Effect Size of Difference
Early childhood education	.48	.25	2.1 s.d.
Targeted to special needs children	.54	.26	2.5 s.d.
Peer support opportunities for parents	.40	.25	.9 s.d.
Home visiting (vs. parent groups)	.26	.49	1.4 s.d.

Average Effects on Cognitive Development of Children with Biological Risks in Programs with and without Early Childhood Education: Randomized Studies

	Targeted to Children At Biological Risk	Not Targeted
Early childhood education	.67	.45
No early childhood education	.50	.26

A difference of .05 represents an effect size of one standard deviation.

Average Effects on Cognitive Development of Children with Biological Risks in Programs with Home Visiting vs. Parent Groups: Randomized Studies

Primary Method of Delivering Parent Education	Targeted to Children at Biological Risk	Not Targeted
Home visiting	.36	.09
Parent peer support groups	.54	.27

A difference of .11 represents an effect size of one standard deviation.

B. Meta-Analyses Derived from The Elkan et al Database

British researchers Elkan, Kendrick, Hewitt, Robinson and their colleagues identified 1218 studies from all over the world, and eventually included 102 studies that met requirements for methodological rigor. The studies evaluated 86 home visiting programs. The relevance of non-United States studies is unclear, given the differences in health and human service systems across countries, the needs of the populations, and the extent to which home visiting is much more common across all socioeconomic strata in European nations. Nevertheless, the review is very comprehensive (at least through about 1996). The authors also published other studies based on the same database to examine the effects of home visiting on immunizations and parenting.

- 1. Elkan, R., Kendrick, D., Hewitt, M., Robinson, JJA., et al. The effectiveness of domiciliary health visiting: a systematic review of international studies and a selective review of the British literature. *Health Technology Assessment* 2000; Vol 4(13).**

Conclude that home visiting is associated with improvements in parenting skills and the home environment, child intellectual development (especially among children with low birth weight or failure to thrive), breastfeeding, social support for mothers; and reductions in some child behavioral problems, the frequency of unintentional injury, and maternal postnatal depression. No effects on children's motor

development, immunization rates, preventive health services, emergency room services, or hospital admission rates. Insufficient evidence regarding physical development, child illness, mothers' use of informal community resources or the size of their informal support network; children's diet; mothers' return to education, participation in the workforce, use of public assistance, family size, number of subsequent pregnancies or rates of child abuse and neglect.

2. **Kendrick, D., Elkan, R., Hewitt, M., Dewey, M., et al. Does home visiting improve parenting and the quality of the home environment? A systematic review and meta analysis. *Arch Dis Child* 2000; 82:443-451 (June).**

Meta-analysis of home visiting programs from 1966 to October 1996. Included randomized trials and quasi-experimental studies of home visiting programs that included at least one postnatal home visit. Part of a larger meta-analysis (cf. Elkan et al, 2000). Found 1218 references, and eventually included 34 studies that reported HOME scores and/or other measures of parenting. Studies included 12 non-US studies (Canada, UK, Ireland, Bermuda, Jamaica). Concludes that home visiting services were associated with an improvement in the home environment (HOME scores) and improvements in parenting (measured in many different ways).

3. **Kendrick, D., Hewitt, M., Dewey, M., Elkan, R., et al. (2000). The effect of home visiting programmes on uptake of childhood immunization: A systematic review and meta-analysis. *Journal of Public Health Nursing*. 22(1), 90-98.**

Meta-analysis of studies from 1966 to 1996. Identified 1218 references in the literature, eventually including only 11 studies that met methodological criteria and reported on immunization rates. Includes four non-U.S. studies (Canada, UK, Turkey, and Ireland). "Our findings suggest that multi-faceted home visiting programmes are not sufficient to increase uptake, and that more specific interventions may be required to achieve this." (p. 93)

C. Other Meta-Analyses

Two other notable meta-analyses focus on child safety, including child abuse and neglect. Differences in conclusions illustrate the influence of different studies being included in the reviews.

1. **Guterman, N.B. (1999). Enrollment strategies in early home visitation to prevent physical child abuse and neglect and the "universal versus targeted" debate: A meta-analysis of population-based and screening-based programs. *Child Abuse & Neglect*, 23(9), 863-890.**

Compared effect sizes from 19 controlled outcome studies across screening-based and population-based enrollment strategies. Effect sizes were calculated on protective services data and on child maltreatment-related measures of parenting. Contrasts programs that are population-based in that they enroll only on the basis of

demographic factors (e.g., everyone in a community, or everyone in a community who is a first-time teen mother – as in the Nurse-Family Partnership), or use active screening-based strategies that assess risk at the individual-level and target services on the basis of psychosocial risk (e.g., using a screen at birth to identify families at high-risk for abuse, or families with substance abuse problems – as in Healthy Families America).

Concludes that each approach produces some benefits, but only the population-based approach produces benefits large enough to be functionally meaningful. Suggests three possible explanations: (1) psychosocial screens may not be accurate at identifying families at risk for future maltreatment; (2) screens may somehow screen in higher proportions of families who are less amenable to change and screen out families who are more amenable to change; and (3) screens may enroll high-need families, but program services may not adequately address their needs.

2. **Roberts, I., Kramer, M.S., Suissa, S. Does home visiting prevent childhood injury? A systematic review of randomised controlled trials. *British Medical Journal*, 1996;312:29-33 (6 January). Available at <http://www.bmj.com/cgi/content/full/312/7022/29>.**

Meta-analysis of home visiting programs from January 1966 to April 1995. Identified 33 experimental or quasi-experimental trials of home visiting programs and eventually included 11 which reported outcome data on injury or abuse or both. Concludes that home visiting has the potential to reduce the rates of childhood injury, but that results concerning abuse are equivocal, at least in part because the use of reported abuse is problematic in evaluations.

III. LITERATURE REVIEWS

Several literature reviews and volumes of collected studies have been published on home visiting in the past decade, and this paper relies on several of them. Key collections include the following:

- A. **Cowan, P.A., Powell, D. & Cowan, C.P. (1998). Parenting interventions: A family systems perspective. In I.E. Sigel and K. Ann Renninger, (eds.), *Handbook of Child Psychology, Volume 4. Child Psychology in Practice*, pp. 3-72.** Literature review of parenting interventions, including home visiting services for young children.
- B. **Gomby, D.S., & Larson, C.S. (eds.) (1993). Home Visiting. *The Future of Children*, 3(3), 1-216.** Special issue of *The Future of Children* which provides an overview of home visiting programs, their history, underlying conceptual models, and staffing; reviews the research literature through about 1992, including the research on the costs and benefits of home visiting programs; describes international (primarily European) home visiting programs; discusses the context of serving families of color and

families in poverty; and contains a proposal for a universal system of home visiting by the U.S. Advisory Board on Child Abuse and Neglect. Appendices provide contact information for several national home visiting programs. Available at www.futureofchildren.org.

C. Gomby, D.S. & Culross, P.L. (eds). (1999). Home Visiting: Recent Program Evaluations. *The Future of Children*, 9(1), 1-224.

Special issue of *The Future of Children* which updates the 1993 issue, and includes reports on the most recent studies of the Nurse Home Visitation Program (now called the Nurse-Family Partnership), Hawaii Healthy Start, Parents as Teachers, The Home Instruction Program for Preschool Youngsters (now the Home Instruction for Parents of Preschool Youngsters program), the Comprehensive Child Development Program, and Healthy Families America. Appendices provide contact and program information. Available at www.futureofchildren.org.

D. Guterman, N.B. (2001) *Stopping child maltreatment before it starts: Emerging horizons in early home visitation services*. Thousand Oaks, CA: Sage Publications.

Volume that focuses on the use of home visiting to prevent child maltreatment. Provides background information on child maltreatment, including prevalence and risk factors; the rationale for and the history of home visiting services to prevent child maltreatment; core elements in the delivery of home visiting services; who receives and benefits from home visiting services; addressing substance abuse via home visitation; the role of families' social networks; and empowering parents. Throughout the book, many programs are profiled as examples of practice, and practice principles are outlined.

E. Johnson, K.A. (May 2001) *No place like home: State home visiting policies and programs*. Johnson Group Consulting, Inc. Report commissioned by The Commonwealth Fund. Available at www.cmwf.org.

Of 42 states responding to a survey about home visiting, 37 reported having state-based home visiting programs, and three others reported having quality improvement or technical assistance projects that support a range of local home visiting programs. The reasons for launching programs are usually improving parenting skills (81%), enhancing child development (76%), and preventing child abuse and neglect (71%). Concludes that state agencies face challenges and barriers as they try to manage multiple programs, that available funding often drives policy and program decisions, and that programs are often launched with over-promises about results that can be achieved. Case studies and contact information are presented for some state efforts. (Note: California did not respond to the survey.)

F. McCurdy, K. & Daro, D. (2001). Parent involvement in family support programs: An integrated theory. *Family Relations*, 50, 113-121.

Summarizes literature on parent engagement in family support programs and proposes a theory of the key factors involved in enrolling and retaining families in programs such as home visiting.

- G. Montgomery, D., Phillips, G., & Merickel, A. (September, 29, 2000). *Home visiting programs: Varying costs and elusive effects*. American Institutes for Research. Report submitted to The David and Lucile Packard Foundation for Grant #97-6152.**

Reviews literature on costs and effectiveness of home visiting programs. Suggests that the annual costs per family for six major models of home visiting services (in 1998 dollars) are as follows:

\$1,341 for HIPPY

\$2,118 for PAT

\$2,203 for Healthy Families America

\$2,995 for Hawaii's Healthy Start

\$2,842-\$3,249 for the Nurse-Family Partnership (costs are less after three years, when all nurses are trained and full caseloads attained)

\$11,935 for the Comprehensive Child Development Program

Describes the components that go into costs for programs (primarily salaries), and the results of time studies of home visitor activities, and includes recommendations for policymakers and program administrators.

- H. National Research Council and Institute of Medicine (2000). *From neurons to neighborhoods: The science of early childhood development*. Committee on Integrating the Science of Early Childhood Development. Jack P. Shonkoff & Deborah A. Phillips, eds. Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. Washington, D.C.: National Academy Press.**

Comprehensive review of the science of all aspects of early childhood development, including the basic biology of child development, core concepts of child development, the interaction between nature and nurture, the role of culture in development, and the roles of family, economics, child care, community, and intervention programs including home visiting, in promoting child development. Contains recommendations for policy, program, and research.

- I. Thompson, L., Kropenske, V., Heinicke, C.M., Gomby, D.S., & Halfon, N. (December 2001) *Home Visiting: A Service Strategy to Deliver Proposition 10 Results*, in N. Halfon, E. Shulman, & M. Hochstein, eds. *Building Community Systems for Young Children*, UCLA Center for Healthier Children, Families, and Communities. Available at <http://healthchild.ucla.edu>**

Reviews the research literature on home visiting programs; describes program models in California (the Adolescent Family Life Program, Black Infant Health, Cal-LEARN, California Safe and Healthy Families, Early Head Start and Head Start Home-Based Option, Early Start, Family Preservation, Healthy Families America, High-Risk Infant Follow-Up, and the Nurse-Family Partnership); describes funding for home visiting programs in California; offers strategies to strengthen the quality of home visiting programs and to evaluate them; and profiles three programs (The Hope Street Family Center Home Visitation Program; the Fresno site of the Nurse-Family

Partnership; and the Alameda County Children and Families Commission Every Child Counts Initiative)

J. Wasik, B.H. & Bryant, D.M. (2001). *Home visiting: Procedures for helping families*. 2nd edition. Thousand Oaks, CA: Sage.

Provides a broad history of home visiting, including its roots in Europe and America; describes the theories and principles that underlie home visitation, and illustrates those principles with examples of home visiting programs. Significant focus on how to deliver home visiting services well, with chapters on home visitor characteristics, training, and supervision; helping skills and techniques; managing and maintaining home visits; visiting families in stressful situations; ethical and professional issues facing home visitors; and assessment and documentation in home visiting. Includes some examples of forms used by home visitation programs to document family need or service delivery.

IV. RECENT STUDIES OF SIGNIFICANT HOME VISITING PROGRAMS

The literature reviews and meta-analyses described above rarely included studies published after 1999. However, since 1999, several significant randomized trials of home visiting programs, including randomized trials of many of the largest national home visiting models (e.g., PAT, HFA, Nurse-Family Partnership, Early Head Start), as well as a federally-funded evaluation of a paraprofessional home visiting model designed to serve teen parents on welfare, have been completed. In most cases, the newer research includes results concerning both the outcomes of the programs and their implementation, which can provide useful information to program planners.

A. The Teenage Parent Home Visitor Services Demonstration

Evaluation Conducted By: The University of Pennsylvania with Mathematica Policy Research, Inc., and the Health Federation of Philadelphia^a

Program Goals:

- reduce the long-term welfare dependence among participating teenage parents, in part by helping the teens delay subsequent pregnancies and births
- strengthen the parenting skills and behaviors of the teen mothers

Location: Chicago, Illinois; Dayton, Ohio; and Portland, Oregon

Time: between March 1995 and September 1997.

^a Kelsey, M., Johnson, A., & Maynard, R. (July 2001). The potential of home visitor services to strengthen welfare-to-work programs for teenage parents on cash assistance. <http://www.mathematica-mpr.com/PDFs/potential.pdf>

Evaluation: Randomized trial.

Population: 2,400 first-time pregnant or parenting teen parents on welfare, of whom 1100 were randomly assigned to receive home visiting services. Overall, teens averaged 18 years of age, had completed 10.5 years of school, most were pregnant with or parenting their first child, 2/3 were African American, and most lived with a parent or grandparent.

Services: Each demonstration site created two home visiting programs – one operated by the local welfare agency (lots of experience in employment issues but not in home visiting), and the other by a community-based organization (lots of experience in home visiting, but not in employment). Teens either received home visiting services, delivered by one of these two county agencies, or regular Job Opportunities and Basic Skills Training Program (JOBS) services. Teens could be sanctioned (their AFDC payments cut) if they did not complete scheduled home visits.

Staffing: paraprofessionals; 30% had been teen parents; 60% had been welfare recipients. 2/3 African-American. Most had completed high school, and some college, though fewer than 25% had bachelor's degree, and none had professional degrees in the helping professions.

Duration of services: Families received between 6 and 30 months of services, depending upon when they enrolled.

Frequency: Home visits were scheduled weekly, but fewer than half were completed. After 6 months of services, about 1½ visits per month were completed; after 12 months, the rate dropped to about 1 visit per month; after that, it dropped further.

Curriculum: child development, parenting, and employment and support

Baseline and Follow-up Period: Mothers were interviewed at enrollment and also at the end of the service period (which averaged 21 months after intake).

Results – Outcomes:

- *School enrollment:* Trend for home visited teens to spend more time in education than non-visited (24% versus 21%, $p < .10$)
- *Educational attainment:* No difference
- *Job training:* Trend for home visited teens to participate less than non-visited in job training (18% versus 23%, $p < .10$)
- *Employment:* Trend for home visited teens to be employed less (36% of the months versus 41% of the months, $p < .10$)
- *Economic well-being:* Earnings were higher for the home-visited teens, suggesting that, since they were not more likely to be employed, that they might have worked more hours or in higher-wage jobs than non-home-visited teens. However, the differential was greatest in the early months of service, and began to disappear by the end of the follow-up period.

- *Income sources*: no difference between groups in reliance on AFDC or food stamps
- *Medicaid receipt*: no difference
- *Protection from sexually transmitted diseases and unintended pregnancy*: Trend for home visited teens to be more likely to use contraceptives such as NorPlant and Depo-Provera, and condoms ($p < .10$), but only after home visitors received additional training on these topics.
- *Pregnancies and births*: no differences in overall rates of pregnancies or repeat births.

Results – Process:

- High staff turnover, driven by personal circumstances, interest in career advancement, low wages, and burnout and stress
- Staff discomfort in talking about sexual relationships and contraception required special training
- Pre-service and in-service training, and high-quality supervision were critical for working with paraprofessionals

B. Early Head Start

Evaluation Conducted By: Mathematica Policy Research, Inc.^b, and the Center for Children and Families at Teachers College at Columbia University, with the Early Head Start Research Consortium (See Appendix C-1 for a description of Early Head Start.)

History: Established in 1995 with 68 programs, Early Head Start served about 55,000 low-income families with infants and toddlers through more than 660 programs by 2002. The evaluation began in 1995.

Program Goals:

- Improve children's development, including cognitive and language development, social-emotional behavior, and health
- Encourage close, supportive relationships between parents and their infants and toddlers
- Help families become healthier
- Help families become more economically self-sufficient

Population: 3000 pregnant women or families with a child 12 months of age or younger, served at 17 sites across the country.

Evaluation: randomized trial

Period of follow-up: Baseline, and then parent interviews at 6, 15, and 26 months after enrollment; and parent interviews, child assessments, and videotaped parent-child interactions at 14, 24, and 36 months.

^bSeveral publications from this evaluation are available on-line at http://www.acf.dhhs.gov/programs/core/ongoing_research/ehs/ehs_intro.html or <http://www.mathematica-mpr.com/3rd/Level/ehstoc.htm>.

Services: Programs were free to create center-based services; home-based services; or mixed models, in which families could receive either or both center- or home-based services at a single site. Program standards in place for both center- and home-based approaches. Performance standards for home-based services encouraged a focus on child development. Four sites began as center-based programs, seven began as home-based, and six began as mixed-approach.

Staffing: Sites hired both professional and paraprofessional home visitors, though most required that home visitors have a postsecondary educational credential or be working toward one.

Onset and Duration of services: Pregnancy through age 3. Reports summarize results at age 2 and 3.

Frequency: Center-based programs offer a minimum of two home visits each year, in addition to center-based services for children; home-based programs offer weekly home visits and at least two group socializations per month for each family.

Curriculum: most common was *Parents as Teachers* (five programs) and WestEd's *Program for Infant/Toddler Caregivers* (five programs). Other programs used the *Partners in Parenting Education* curriculum, *Early Learning Accomplishment Profile* materials, or *Hawaii Early Learning Profile* materials.

Results – Outcomes:

- *Child Outcomes and Parenting Behavior:* Center-based programs had beneficial effects on cognitive development and reduced some negative aspects of children's social-emotional development. Home-based programs had beneficial effects on language development at age 2, but not age 3, and possibly affected some parenting outcomes, but had no effects on cognitive development. Mixed-approach programs had beneficial effects on language, some aspects of social-emotional development, and parenting outcomes.
- *Parents' self-sufficiency:* EHS had no overall impact on parent income, although parents in mixed-approach and, especially, home-based EHS were more likely than parents in the control group to participate in education and training.
- *Parents' mental health:* Parents in home-based programs displayed less stress, but there were no other effects on parents' mental health.
- *Magnitude of effects:* Where positive effects were seen, the effect sizes were usually not larger than .15-.30 of a standard deviation, with the largest effects coming from the mixed-approach programs.
- *Who benefited most:* Benefits were statistically significant for African-American and white non-Hispanic families, but not Hispanic families at age 2. At age 3, benefits

were statistically significant for African-American and Hispanic families, but not for white non-Hispanic families.

- Benefits for children were greater if families enrolled prenatally.
- Services had the most impact on child well-being among families at moderate risk. Low-risk families showed few benefits, and high-risk families were unfavorably affected.

Results – Process:

- *Implementation matters:* child and parent benefits were more frequent and larger in magnitude for programs that were fully implemented.
- During the first seven months after enrollment, about 57% of EHS families in home-based programs received home visits weekly, and 52% of families reported receiving weekly home visits during the subsequent nine months. Most programs were able to visit families two to three times per month, rather than weekly.
- About 25% of the program group left the program within the first year after enrolling because they (1) moved out of the area; (2) asked to be removed from the program rolls; (3) were removed because of poor attendance or lack of cooperation with program requirements.
- Program staff judged that slightly more than one-third of the research families became highly involved in program services.
- After welfare reform, home-based programs tried to conduct home visits during evenings and on weekends when working mothers were more likely to be at home, but families were often too tired and busy to participate at those times.
- Parent participation rates in parent education and other group activities were low.

C. The Nurse-Family Partnership (Denver)

Evaluation Conducted By: D.L. Olds, J. Robinson, R. O'Brien, D.W. Luckey, et al. (Researchers from the Prevention Research Center for Family and Child Health, the University of Colorado Health Sciences Center, and Cornell University Department of Human Development)^c

History: The Nurse-Family Partnership began more than 20 years ago as a demonstration program in Elmira, New York, where it was tested with primarily white women. It was tested again in Memphis, Tennessee, in a predominantly African-

^c Olds, D.L., Robinson, J., O'Brien, R., Luckey, D.W., et al. (2002) Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics*, 110(3), 486-496.

American population. This is a report on the results of a third randomized trial of the program, this time conducted in Denver, Colorado, and comparing the effectiveness of nurse and paraprofessional home visitors. (See Appendix C-4 for additional details about the program and its presence in California.)

Program Goals:

- Improve pregnancy outcomes by helping women to alter their health-related behaviors, including reducing the use of cigarettes, alcohol, and illegal drugs;
- Improve child health and development by helping parents provide more responsible and competent care for their children; and
- Improve families' economic self-sufficiency by helping parents develop a vision for their own future, plan future pregnancies, continue their education, and find work.

Population: 735 primarily unmarried, pregnant women with no previous live births, who were eligible for Medicaid or had no private insurance. In this randomized trial, 45% of the women were Hispanic, 36% Caucasian non-Hispanic, 16% African American, and 3% American Indian or Asian-American.

Evaluation: randomized trial

Time: Began to recruit participants in 1994

Period of follow-up: At end of the intervention (when children were 2 years of age).

Services: Families randomly assigned to one of three groups: (1) visits by nurses; (2) visits by paraprofessional home visitors; and (3) a control group. All groups received developmental screening for their children at 6, 12, 15, 21, and 24 months of age, and referral services. The first two groups also received home visits from enrollment until the children reached 2 years of age.

Staffing: Nurses were required to have a BSN degree with experience in community college or maternal and child health nursing. Paraprofessionals were required to have a high school education, but no college preparation in the helping professions or a bachelor's degree in any discipline, although preference was given to applicants who had previously worked in human service agencies. Both groups were required to have strong "people skills." Both groups of visitors received 2 months of extensive training. Caseloads were about 25 families per home visitor. Supervision levels were 2 supervisors per 10 paraprofessionals, and 1 supervisor per 10 nurses.

Onset and Duration of services: Prenatal to age 2.

Frequency: Visits were scheduled on a weekly basis initially, fading to less frequent visits after birth.

Curriculum: The curriculum is focused on the goals of the program, and includes visit-by-visit guidelines and detailed objectives. Visitors adapt content of individual visits to match the needs and interests of the families.

Results – Outcomes:

In comparisons against the control group:

- Families visited by paraprofessionals did not differ significantly from the control group on any outcome
- Nurse-visited families showed benefits over the control group on the following outcomes: lower cotinine levels during pregnancy (less smoking); fewer subsequent pregnancies and births; greater employment during the 13th-24th months; better mother-child interaction; less vulnerability on the part of the infants to fear stimuli; language development.
- Neither group showed benefits on the number of cigarettes smoked; use of preventive services; use of emergency housing or food banks; mothers' educational achievement, employment during the 1st-12th months of the baby's life; or AFDC.
- For families in which mothers had low psychological resources (low IQ, low coping skills, poor mental health) at enrollment, nurse-visited families showed benefits in mother-child interaction, the home environment, the baby's response to positive and to anger stimuli, and cognitive and language development.

In comparisons between nurses and paraprofessionals:

- Generally, paraprofessionals generated effects of about half the magnitude as that generated by nurses, but these differences were rarely statistically significant.

Results – Process:

- Nurses completed an average of 6.5 visits during pregnancy and 21 during infancy. Paraprofessionals completed an average of 6.3 visits during pregnancy and 16 visits during infancy.
- Staff turnover: All 10 nurses stayed throughout the duration of the program; 7 of 10 paraprofessionals stayed.
- Nurses spent a greater portion of their home-visit time on physical health during pregnancy and on parenting after delivery than did paraprofessionals. Paraprofessionals spent more time on pregnancy planning, education, work, and family material needs.
- Paraprofessionals had longer average visit times than nurses.

D. The San Diego Healthy Families America Trial (Precursor to Cal-SAHF)

Evaluation Conducted By: J. Landsverk, T. Carrilio, C. Jones, R. Newton, et al. Child and Adolescent Services Research Center (a multidisciplinary consortium of researchers affiliated with Children's Hospital and Health Center-San Diego, San Diego State University, and the University of California at San Diego).^d

^d Executive summary available from John Landsverk at jlandsverk@aol.com.

History: Research and demonstration project funded by the State of California Department of Social Services, Office of Child Abuse Prevention, the California Wellness Foundation, and the Stuart Foundation. The project was designed to replicate a Healthy Families America (HFA) program, using the same instruments and tests that were used in the Johns Hopkins trial of the Hawaii Healthy Start program. Hawaii Healthy Start is the forerunner of the HFA program. The San Diego site added some programmatic enhancements to the Hawaii Healthy Start and HFA models which are similar to elements included in the ABC/CalSAHF model (enhanced group/center-based program; addition of a nurse and substance abuse specialist to the multidisciplinary team; and elaboration of the multidisciplinary team). The site meets HFA accreditation criteria, but has chosen not to become an accredited HFA site.

Program Goals:

- Improved maternal life course
- Reduced risk for child abuse and neglect
- Families more effectively tied to other needed community services
- Reduced incidence of child abuse and neglect
- Improved child health and development outcomes

Time: November 1995-March 2000.

Population: screening of all new mothers at the Sharp Mary Birch Hospital (first by casefiles and then, if warranted, through in-person interview). If families were “overburdened”, they were eligible for the study, so long as they could speak English or Spanish, were not active Child Protective Services cases, and did not live in regions of San Diego County where existing paraprofessional home visiting programs were in place. A total of 488 families were randomly assigned to either control or experimental group. Over both groups, 17% of families were Hispanic (English-speaking); 19% were Hispanic (Spanish-speaking); 24% Caucasian; 20% African-American; and 10% Asian/other. Over 55% received AFDC/TANF benefits at baseline. 49% manifested symptoms of clinical depression; 71% were covered by MediCal at baseline.

Evaluation: randomized trial

Period of follow-up: Baseline, and then every four months until end of services (when child was 3 years of age). Measures included phone contacts and annual in-person assessments of mothers and children.

Services: Contact with families was initiated in the hospital with a “welcome baby” gift. Families screened as high-risk were offered program services, which consisted of home visits, support groups and parenting classes, and case management. Parent support groups and parenting skills classes were offered alternatively every week, with transportation and child care provided. Child development specialists assessed children, offered assistance, and made referrals for additional evaluations, if needed. Control group families received a list of community resources at baseline.

Staffing: Paraprofessional home visitors, defined as bachelor's degree preferred, AA with experience considered; some college level coursework in child development, mental health, or related field, or at least 4 years of experience working with at-risk families. Knowledge of child abuse and child abuse reporting procedures; strong written, verbal and problem-solving skills; ability to engage resistant clients; strong background in child development, substance abuse, domestic violence, and family dynamics. 40-hour training, offered by the Family Stress Center, the principal trainers for Hawaii's Healthy Start program, before services began, and then ongoing training. Each team member received 1-2 hours of formal, weekly individual supervision. Caseloads of no more than 25/visitor.

Onset and Duration of services: Birth to age 3.

Frequency: initially weekly, fading over time.

Curriculum: Home visits included parent support, informal counseling, modeling and education regarding life skills, household management, child development and child management, linkages with community resources including physicians, as well as public service programs and assistance with transportation.

Results – Outcomes:

- At 36 months, visited families were less likely to report repeat pregnancies (49% versus 40%, $p=.05$). This difference was significant for white women, but not for women of other racial or ethnic groups.
- There was a trend for visited families to have fewer live births (28.6% vs. 22%, $p=.09$).
- No differences on measures of maternal substance abuse, being a victim of partner violence, confidence in adult relationships, mental health scores, or measures of social support at year 3, though visited mothers had shown less depressive symptoms than control group mothers at year 2.
- No differences in high school degree or employment levels, though visited mothers were more likely to have attended school (37% versus 28%, $p=.05$) at year 3.
- No differences in the home environment, mother-child interactions, use of non-violent discipline, or less stress related to parenting.
- Child abuse and neglect was assessed using a self-report measure of neglectful, psychologically aggressive and abusive behaviors. No differences in being likely to engage in neglectful behavior, to inflict corporal punishment, or engage in physical assault during the target child's first three years of life. However, visited mothers were less likely to engage in psychological aggression at year 2, and, for those mothers who did report they used psychological aggression or corporal punishment, the mothers in the control group used those techniques more frequently than the intervention group.
- No differences in percentage of children with health insurance; with a medical home; in immunizations; or in use of safety measures in the home; but children in the intervention group had more well-child visits in the second year of life.

- No differences in use of other services such as legal assistance, child care, respite care, transportation, adult education, housing, counseling, substance-abuse treatment, support groups, women's shelter, material assistance, and financial assistance.
- No difference in children's cognitive development at year 3, although intervention group children outperformed the control group in years 1 and 2.
- No differences in mothers' reports about children's behavior, except intervention group families reported fewer somatic problems at year 3.

Results – Process:

- Turnover in staff: 7/10 home visitors left during the project; all team leaders and their replacements left the program prior to completion
- About 70% of families who were screened eligible agreed to participate.
- Average of 43 home visits completed over three years, with the mean number of visits dropping from 20 in Year 1, to 13 in Year 2, to 10 in Year 3.
- 70% of families received at least some home visits each month over the first year, dropping to 50% by the last year.
- 30.5% of the families were not engaged in the program by the 20-month point (including 5.3% of families who moved out of the area)